

1 **Q. Newfoundland Power (Volume 2, Tab 6.2 2021 System Upgrades, page 1) states that**
 2 **approximately 77% of the capital expenditures for the 2021 System Upgrades result**
 3 **from the need to ensure continued vendor support. An example of this type of**
 4 **expenditure is referenced on page 4 where the current Outage Management System**
 5 **version was implemented in 2019 and will no longer be supported by the vendor as**
 6 **of July 2021. Please describe the practice Newfoundland Power follows when**
 7 **evaluating the version of software to be implemented to better ensure continued**
 8 **vendor support.**

9
 10 **A. A. System Upgrades Generally**

11
 12 Newfoundland Power operates approximately 180 applications in providing electrical
 13 service to customers. Examples of these applications include the Supervisory Control
 14 and Data Acquisition (“SCADA”) system, Geographic Information System (“GIS”), and
 15 Outage Management System (“OMS”).

16
 17 Newfoundland Power applies industry best practices in managing its portfolio of
 18 applications.¹ Comprehensive evaluations are completed at the time of procuring
 19 applications. Technical and operational reviews are routinely completed to ensure
 20 applications are performing reliably and providing the functionality necessary in serving
 21 customers.

22
 23 System upgrades are primarily driven by advancements in technologies over time.
 24 Applications that are not upgraded are at higher risk of becoming obsolete. The 4
 25 principal drivers of system upgrades are:

- 26
 27 (i) The expiration of third-party vendor support. Vendors provide support of
 28 their applications to resolve performance and security issues. Software
 29 vendors often support more than 1 version of their products, but discontinue
 30 support of older versions over time as the technology evolves.²
 31
 32 (ii) Performance and security issues.³ Over time, transaction volumes can exceed
 33 the capacity of applications or computing hardware, causing the performance
 34 of applications to degrade. This can result from, for example, the
 35 accumulation of volumes of data over time. In addition, older versions of

¹ Gartner Inc., a leading advisor in global information technologies, indicates best practices in managing applications include: (i) operational management to ensure an application delivers the necessary business requirements; (ii) lifecycle management to ensure an application is managed from implementation to retirement; and (iii) application governance to ensure roles and responsibilities for application ownership are clearly understood. See Gartner Inc. *Managing a Portfolio of Applications Demands More than Application Portfolio Management*, published April 30, 2020.

² For example, Newfoundland Power’s GIS was last upgraded in 2018. The vendor provided a new version of this software since that time. However, vendor support of the 2018 version will be maintained until 2021.

³ For example, Newfoundland Power undertakes annual upgrades to its SCADA system. This system is used to control and monitor the electrical system in real time. Annual upgrades maintain the reliability and security of this application which, in turn, maintains the reliability and security of the electrical system serving customers. See the *2021 Capital Budget Application, Volume 2, report 6.2 2021 System Upgrades*.

1 applications are also more vulnerable to security issues, including
 2 cybersecurity threats. Cybersecurity threats are an increasing risk in the utility
 3 industry.⁴

4
 5 (iii) Compatibility issues with other hardware and software.⁵ This includes
 6 compatibility with, for example, an underlying database or server that has
 7 reached the end of its useful life and must be replaced. It also includes
 8 compatibility with other integrating applications, such as compatibility
 9 between an OMS and GIS.⁶

10
 11 (iv) Changes in business requirements.⁷ As an application ages, it may no longer
 12 keep pace with evolving business requirements. This would include, as
 13 examples, functionality required to complete work efficiently, meet
 14 customers' service expectations, or comply with new regulatory requirements.
 15

16 In Newfoundland Power's experience, the expiration of vendor support is now the
 17 primary driver of system upgrades. The expiration of vendor support accounts for
 18 approximately 77% of expenditures proposed for the *2021 System Upgrades* project.
 19 This is consistent with current industry trends. For example, Gartner Inc. indicates that
 20 vendors typically provide new versions of software every 1 or 2 years, with major
 21 releases every 5 to 10 years.⁸

22 23 **B. Managing Vendor Support**

24
 25 There are 4 options available when vendor support for an application expires: (i) upgrade
 26 the application to a supported version; (ii) continue running the application unsupported;
 27 (iii) replace the application; or (iv) retire the application.
 28

29 Approximately 30% of Newfoundland Power's applications have vendor support. In
 30 cases where system failure would have minimal impacts on customers or Company
 31 operations, upgrades are not undertaken for the purpose of maintaining vendor support.⁹

⁴ For example, in 2019 the North American Electric Reliability Corporation ("NERC") reported that a vulnerability in the web interface of a vendor's firewall was exploited, allowing an unauthenticated attacker to cause unexpected reboots of the devices. See *Lessons Learned: Risk Posed by Firewall Firmware Vulnerabilities*, published September 4, 2019.

⁵ For example, Newfoundland Power completed an upgrade to the software used to support its Customer Service System in 2015 to ensure continued compatibility with upgraded server infrastructure. See the *2015 Capital Budget Application, report 6.2 2015 System Upgrades*.

⁶ Newfoundland Power's GIS provides location-related information to the Company's OMS to facilitate a prompt response to customer outages.

⁷ For example, Newfoundland Power upgraded its Software Development Environment in 2017 to ensure its applications can be adequately developed and tested prior to deployment. See the *2017 Capital Budget Application, report 6.2 2017 System Upgrades*.

⁸ See Gartner Inc., *Managing a Portfolio of Applications Demands More than Application Portfolio Management*, published April 30, 2020.

⁹ An example of an application without vendor support would be Camtasia. This is a video editing software that allows employees to create instructional videos for safety and other topics. While this software facilitates efficient employee training, system failure would have minimal impact on customers and Company operations.

1 However, Newfoundland Power ensures vendor support is maintained for *all* critical
2 applications.¹⁰ This would include, as examples, the Company's SCADA system, OMS,
3 GIS and contact management system, among others. Failure of any of these applications
4 would negatively impact the provision of safe and reliable service to customers at least
5 cost. Maintaining vendor support minimizes risks of application failure.
6

7 Newfoundland Power manages the provision of vendor support for its applications in a
8 manner consistent with industry best practices. Comprehensive evaluations of software
9 vendors are completed at the time of procuring a solution. These evaluations include:
10

- 11 (i) An assessment of vendor health and vendor market share. This ensures vendors
12 intend to continue investing in their products and will be in a position to support
13 their products over the longer term. This mitigates risks associated with
14 technology obsolescence and repeated replacements of applications.¹¹
15
- 16 (ii) An assessment of vendors' product roadmaps. This includes assessments of when
17 and how often vendors expect to upgrade their products, the cost of associated
18 upgrades, and whether the upgrades will be mandatory to maintain support.
19 Vendors' product roadmaps typically span 5 to 10 years.
20

21 Once a software vendor is selected, Newfoundland Power then evaluates the specific
22 version of the software to be implemented. Where practical, the most recent version of
23 the software is implemented.¹² For example, the Company implemented the latest
24 version available at the time of replacing its OMS in 2018. This application required
25 approximately 1.5 years to implement. Consistent with industry trends, an upgrade to
26 this application is necessary in 2021 to maintain vendor support.
27

28 Newfoundland Power has also replaced applications when an upgrade was not least-cost
29 for customers. For example, the Company's call centre technology became obsolete in
30 2016. The vendor, Aspect, indicated that a significant overhaul of the system would be
31 required in order to maintain vendor support.¹³ Newfoundland Power completed a
32 competitive tendering process prior to upgrading the system. The competitive tendering
33 process determined replacement with a solution from another vendor, Avaya, was least-
34 cost. The Avaya solution continues to serve Newfoundland Power's customers today.
35

36 Overall, this approach to managing system upgrades is consistent with industry best
37 practices and the least-cost delivery of reliable service to customers.

¹⁰ The only critical application without vendor support is Newfoundland Power's Customer Service System. This system has been supported using internal expertise since 1997. The Company is proposing to commence replacement of this system with a modern, vendor-supported application starting in 2021. For more information, see the *2021 Capital Budget Application, Volume 1, Customer Service Continuity Plan*.

¹¹ This evaluation criteria is consistent with the recommendations of Ernst and Young LLP. See the *2021 Capital Budget Application, Volume 1, Customer Service Continuity Plan, Attachment A*, page 16.

¹² Newfoundland Power may not implement the most recent version of an application in cases where the newest version has not been adequately tested in the market or is not compatible with other integrating applications, and where vendor support of an older version can still be maintained for a reasonable period of time.

¹³ See the *2016 Capital Budget Application, report 6.2 2016 System Upgrades*.